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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,321	07/29/2002	Norbert Kerner	56/372	2436

7590 02/11/2004  
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NBC Tower Suite 3600  
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Chicago, IL 60610

EXAMINER

BARNES, CRYSTAL J

ART UNIT	PAPER NUMBER
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2121

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/089,321

Applicant(s)

KERNER, NORBERT

Examiner

Crystal J. Barnes

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 1-16 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 34 and 35 is/are allowed.
- 6) ☒ Claim(s) 17 and 31-33 is/are rejected.
- 7) ☒ Claim(s) 18-30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

### *Information Disclosure Statement*

2. The information disclosure statement (IDS) submitted on 16 September 2002 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### *Drawings*

3. The proposed drawing corrections were received on 29 July 2002. These proposed drawing corrections are acceptable.

4. The subject matter of this application admits of illustration by a drawing (Figure 1) to facilitate understanding of the invention. Applicant is required to

furnish Figure 1 under 37 CFR 1.81. No new matter may be introduced in the required drawing.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: steps S110 and S135 in figure 2b are not mentioned in the specification. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to because English-language translations for some of the legends in figures 3 and 4 are not provided. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "resultant signal nsi" on page 12 line 20 of the substitute specification does not appear in figure 4. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### *Specification*

8. The disclosure is objected to because of the following informalities: the section heading "ANNEX (Theory, Simulation and Test Results)" should be changed to "Theory, Simulation and Test Results". Appendices and/or annexes provide supplemental information. Since the majority of the disclosure is the "ANNEX", the "ANNEX" would not be considered as supplemental information. Appropriate correction is required.

#### *Claim Objections*

9. Claims 31 and 32 were objected to because of the following informalities: a typographical error of the claim dependency. Per our conversation on 03 February

2003, claim dependency has been corrected so that claims 31 and 32 depend from claim 17.

### *Double Patenting*

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 17, 31 and 32 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6,274,995 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to one of ordinary skill in the art to broaden the claim by removing the step of producing vibrations and still be able to determine an optimal value for a controller

parameter (undamped machine oscillation) and resonant frequency of a control loop.

Controllers utilizing algorithms/models for tuning are well known in the art.

*Claim Rejections - 35 USC § 102*

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 17 and 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,621,656 to Langley.

As per claim 17, the Langley reference discloses a method for determining at least one time constant of a reference model, which is designed as a 2nd order time-delay element of a machine, said method comprising: detecting an oscillation frequency (see column 4 lines 65-66, "frequency sensor 6") of an undamped machine oscillation (see column 4 lines 55-56, "undamped resonance (angular frequency)"); and determining an optimized value (see column 7 lines 41-42, "adjust the tuning") of a time constant of said reference model (see column 7 lines 45-48,

"gradient-descent algorithm") as a function of said detected oscillation frequency ("frequency") of said undamped machine oscillation (see column 7 lines 55-64, "undamped resonance (angular) frequency").

As per claim 31, the Langley reference discloses said method is exercised in an automated manner (see column 3 lines 46-48, "models continuously updated and refined").

As per claim 32, the Langley reference discloses further comprising using in said machine (see column 3 lines 25-28, "structure") said reference model (see column 3 lines 38-46, "mathematical model") with said optimized value ("tune the resonators") of said time constant.

As per claim 33, the Langley reference discloses said machine theoretically requires an nth order reference model, wherein  $n > 2$  applies (see column 3 lines 59-60, "harmonics at  $f_1$ ,  $2f_1$ ,  $3f_1$  ... etc." and column 4 lines 60-62, "angular frequency").

*Allowable Subject Matter*

14. Claims 34 and 35 are allowable.



15. The following is a statement of reasons for the indication of allowable subject matter:

As per claim 34, the prior art of record taken alone or in combination fail to teach a closed speed control device, which comprises a proportional branch and an integral branch and wherein said reference model is located between said position control device and said closed speed control device.

16. Claims 18-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Conclusion*

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to optimizing/tuning frequencies using algorithms/models in general:

USPN 4,691,276 to Miller et al.

USPN 5,533,565 to Kodaira et al.

USPN 5,319,296 to Patel

USPN 5,844,448 to Jackoski et al.

USPN 6,236,182 B1 to Kerner

USPN 6,330,484 B1 to Qin

USPN 6,678,621 B2 to Wiener et al.

US Pub. No. 2003/0078681 A1 to Dubois et al.

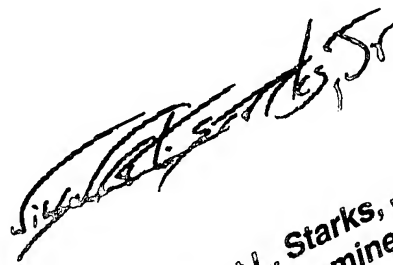
US Pub. No. 2003/0153990 A1 to Boiko

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal J. Barnes whose telephone number is 703.306.5448. The examiner can normally be reached on Monday-Friday alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anil Khatri can be reached on 703.305.0282. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cjb  
February 5, 2004

  
Wilbert L. Starks, Jr.  
Primary Examiner  
Art Unit - 2121